	Application No.	Applicant(s)
Notice of Allowability	10/780,898	KOGA ET AL.
	Examiner	**Art Unit**	
	Emmanuel Bayard	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *2/19/04*.

2. ☒ The allowed claim(s) is/are *1-25*.

3. ☒ The drawings filed on *19 February 2004* are accepted by the Examiner.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some*   c) ☐ None of the:

        1. ☒ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of

    Paper No./Mail Date _____ .

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
    Paper No./Mail Date *1/7/05*

4. ☐ Examiner's Comment Regarding Requirement for Deposit
    of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413),
    Paper No./Mail Date _____ .

7. ☐ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

DETAILED ACTION

This is in response to application filed on 2/19/04 in which claims 1-25 are

pending. The application has been fully considered therefore this case is in condition for

allowance.

Allowable Subject Matter

1.   The following is an examiner's statement of reasons for allowance: a phase-

difference distribution calculator for calculating a number of the divided complex data

present within each of plural quadrants on orthogonal coordinates and selecting a

maximal number among the calculated numbers; and a decision unit for deciding

whether the received data is intended data by comparing the maximal number and a

threshold number as recited in claims 1, 5. A synchronization shift calculator for

calculating a value of synchronization shift utilizing the average value; and a

synchronization timing estimation circuit for estimating a probable synchronization

timing from the value of synchronization shift and for feeding back the synchronization

timing to said complex data output device as recited in claim 7. Wherein said wavelet

transformer includes: M-1 one-sample delay elements (Mis positive integer more than 2)

for delaying the received data sequentially for one sampling period; M down samplers

for down-sampling the received data and the sequentially delayed data; a prototype

filter having a polyphase configuration and possessing a real coefficient for receiving the

down-sampled data; and M points fast Fourier transformer for performing a fast Fourier

transform to the filtered data output from said prototype filter; and wherein said carrier

detector includes: a one-symbol delay element for delaying the received data by one-

symbol period; an multiplier for multiplying the received data and the one-symbol

delayed data; and a one-symbol moving average circuit for receiving the added data

and obtaining the moving average by correlating the received data with the delayed

data as recited in claim 8. A carrier detector for deciding whether the digital data

received from said analog to digital converter is intended data based on the level

decided by said level decision unit; and a symbol synchronizing circuit for synchronizing

the received data output from said carrier detector as recited in claim 9. A carrier

detection circuit for detecting a carrier utilizing data output from said wave detecting

portion and a threshold which can be changed according to a condition of transmission

line; and a symbol synchronizing circuit for estimating synchronization timing utilizing

data output from said carrier detection circuit as recited in claim 10. A carrier detection

circuit for performing a carrier detection utilizing the sub-carrier selected by said

selector; and a symbol synchronizing circuit for estimating synchronization timing

utilizing the sub carrier selected by said selector as recited in claims 11-14. A sub

carrier-pair generating device for generating a sub carrier pair from the transformed

data and the delayed data; a phase-difference calculator for calculating a phase-

difference between sub carrier-pairs; and a decision unit for deciding received data

based on the phase-difference calculated by said phase-difference calculator as recited

in claim 16. A calculation means for calculating a number of the divided complex data

present within each of plural quadrants on orthogonal coordinates and selecting a

maximal number among the calculated numbers; and a decision means for deciding

whether the received data is intended data by comparing the maximal number and a threshold number as recited in claims 18, 20.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

2.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bradley U.S. Patent No 6,804,501 B1 teaches a receiver.

De Bart et al U.S. Patent No 6,549,574 B1 teaches a transmission system.

Kang et al U.S. Patent No 6,370,133 teaches a CDMA receiver.

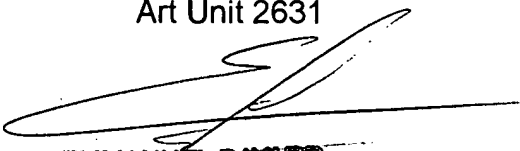Darveau U.S. Patent No 6,236,726 B1 teaches a transmit power.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Emmanuel Bayard
Primary Examiner
Art Unit 2631

5/12/05

EMMANUEL BAYARD
PRIMARY EXAMINER